

WDS-001

AFTER FINAL: EXPEDITED ACTION

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Amendment dated 03/07/2006

Reply to office action mailed 09/08/2005

APPENDIX



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Bartley C. Conrath

Serial No. 09/771,333

Group Art Unit 2137

Filed January 26, 2001

Examiner Z. Davis

For POINT TO POINT DATA STREAMING USING A MEDIATOR NODE
FOR ADMINISTRATION AND SECURITY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. §1.132
OF
BARTLEY C. CONRATH

Sir:

BARTLEY C. CONRATH declares as follows:

1. I have B.S. (1988) and M.S. (1990) degrees in Electrical Engineering from the University of Illinois.
2. I am currently Vice President of Software and Systems for Radio Dynamics Corporation. I have fifteen years experience in the area of signal and image processing and communications systems, and computer programming.
3. I am the inventor of the subject patent application, and I have reviewed the application and claims, along with the examiner's remarks as contained in the Office Action mailed on September 8, 2005.

4. A primary feature of this invention is that the streaming data travels directly over a connection from the sender to the viewer (point-to-point), while the third node (the Mediator) is used to initiate or control that transmission but does not actually act as a video server for the streaming data, which is streamed in point-to-point fashion directly from the sender to the viewer. This is described in the specification at page 6, line 26, to page 7, line 2, and at page 12, lines 20-26, and in Figures 1 and 3. Teng's description is consistent with a linear three node architecture as described in the specification at page 3, line 17, to page 4, line 11. This fundamental difference is important for bandwidth considerations and for the intended function of the invention, which is remote monitoring. The fact that the video stream is directly transmitted to the viewer offers a level of privacy. There is no centralized video server component as in the Teng design.

5. The control functions of the Mediator node in the present invention are limited to the initiation sequence, before communication is established between the Sender and the Viewer. Communication between the Sender and the Viewer is established directly by the Sender and the Viewer. The Mediator node provides authentication, and if the Sender and Viewer are authorized to be connected the Mediator node sends session keys to the Sender and the Viewer. This is the last control exercised by the Mediator node, and occurs before direct communication is established between the Sender and the Viewer. Once direct communication is established between the Sender and the Viewer, it is the Viewer that controls the transmission of streaming video from the Sender. The Mediator node is not involved at all in control of the communication. This is quite different from Teng, where the exercise of controls during communication is mediated by the video server. In fact, there is no indication in Teng of any direct communication of control functions between clients without going through the video server. As shown in Figure 6, all RPC signals go through the video server. Consequently, at the very minimum, Teng

discloses that the video server is actively involved during communications over the network.

6. The Teng patent does not explicitly show the data stream flow but instead describes it going to the “network.” For example, Teng (col. 11, lines 4-6) indicates that clients access digital video data from the video server. The diagrams show the video server component as a separate system that provides the video. Teng (col. 11, lines 23-29) describes supporting figures containing a video server and presenter client and a number of viewer clients. Inclusion of the video server in the design indicates that the intent of the design is for the video server to function as a server, and that the clients of both varieties, presenter and viewer, communicate to the video server, not directly to each other. This requirement of ongoing mediation by the server is confirmed by Teng (col. 11, line 64, to col. 12, line 6), which discusses communication from the server to the presenter client and from the server to the viewer client.

7. In a further example, Teng (col. 12, lines 28-43) describes how a viewer client gets added to the list of viewers of a particular presenter client. The presenter client then requests the list of those clients viewing the presentation from the video server. This implies that, up to this point, there is no direct connection between the presenter client and the viewing clients, since otherwise the presenter client would not need to obtain this information from the server. Instead, the presenter client uses this list so that viewing clients can have a return channel audio stream (col. 12, line 20-43). This is further evidence that the video stream travels from the presenter to the viewer through the video server. In the HowsMy.com system, it is not necessary to query the server for a list of viewers. Since all viewers connect directly to the MediaSender, the MediaSender has knowledge of all connecting viewers.

8. Regarding the Examiner's opinion that the Teng system provides a method to locate the sender address, the Examiner's opinion is not supported by the Teng reference, and in particular it is not supported by the passage cited by the Examiner, col. 13, line 65, to col. 14, line 3. In this section, Teng describes the use of a multicast directory to allow a viewer to get a list of available video streams in a manner analogous to selecting a television channel. This technology is fundamentally different from the HowsMy.com system and is not evidence that the Teng system provides a dynamic IP address lookup.

9. The HowsMy.com dynamic IP location system is unicast, not multicast. A HowsMy.com client user upon logging into the HowsMy.com Mediator web site receives a list of permitted streams from the database. Upon selecting a stream, the Mediator sends the viewer a secure token containing the IP address (Page 8 Line 26-Page 9 Line 1) allowing the client to connect directly to the desired MediaSender. The multicast implementation of the Teng system works differently. The viewer client would go to the predetermined multicast IP address which would be the same for any client accessing the particular system and then, based upon login credentials, would get a list of available streams (col. 14, lines 4-8). Multicast by definition sends the same directory to all subscribers on that multicast address. However if a particular client is allowed to view one stream and not another it would be up to the viewer client to filter the full directory to show just those streams permitted to the viewer (col. 14, lines 6-8). This would be satisfactory for a system with a high ratio of viewers to presenters and a non-hostile environment like on a corporate LAN, but not for a monitoring system managed by the Viewer like the HowsMy.com system. The HowsMy.com system has a different focus with large numbers of MediaSenders and viewers, and a low ratio of viewers to MediaSenders available to the Internet at large with relevant security concerns. The list of permitted

streams is mostly unique to a Viewer, so multicast would not be appropriate.

Therefore the multicast directory of Teng is not similar to the HowsMy.com system.

10. With regard to the Examiner's opinion that limitation of the viewer pausing and restarting the video stream without intervention by the Mediator node is not supported in the specification, this opinion is incorrect. Figure 3 directly shows the time line of the HowsMy.com communications handling. It can be plainly seen that the Mediator node no longer appears in the system after the encrypted tokens are sent to the MediaServer and the viewer. After the keys are sent, direct communication is established between the MediaServer and the viewer which includes the opening of a control socket used to control the video stream. The diagram shows that the Mediator node is not involved after the video stream is established so therefore it cannot be involved with pausing or restarting an already established stream.

11. The manner of the connection and the flow of the streaming data is a fundamental feature of the HowsMy.com application. Most previous art addresses video teleconferencing or presentation systems having a low ratio of presenters to viewers. In these cases, bandwidth becomes an important consideration as you can easily overwhelm a network. The design of such systems is often built around a video server that receives the video source from other servers or presenter clients. The video server can then mediate access control and ensure a certain quality of the video stream for each viewer or restrict access if the number of viewers gets to be too high. Multicasting technology can also be used.

12. The HowsMy.com system is primarily a point-to-point system used for remote monitoring where there is a larger ratio of presenters to viewers. Typically, there is one MediaSender and one Viewer; although the system can scale up if the resources are available. Because the MediaSender and viewer software can be located anywhere on the network, the operation of the communications link does not

risk overloading a centralized video server. It is feasible to use the Internet at large and spread bandwidth requirements over this very large network.

13. The Teng patent does not explicitly describe the manner of the connection and the flow of the streaming data. It must be inferred by passages in the patent and logically from its intended use. I have also reviewed U.S. Patent No. 5,550,982 for a "Video Application Server" to Long et al., from which Teng is a direct descendant. Long is concerned with serving movies or other video streams from a server to a number of client viewers. Figure 3 in Long is the same as Figure 3A in Teng, and describes the software architecture of the video server. This architecture includes a stream controller which is described as being able to modify stream attributes. Many of the stream attributes listed only make sense on a video server such as source or destination, priority, maximum bandwidth, number of disk array accesses (Column 6, Lines 50-57).

14. Another part of the video server common to both patents is the Disk I/O interface. The purpose of this piece is to maximize the number of simultaneous streams while maintaining continuity requirements for each stream (Column 7, Lines 24-27). It appears that the video streams are flowing through the video server. Similarly, Figures 5A and 5B and their corresponding descriptions are the same in both the Long and Teng patents. As in Long, Teng says "In addition, the client executes video server interface software which permits the client to access digital video from the dedicated video server across the local area network." (Column 8, Lines 12-15, in Long; Column 10, Lines 28-32). This implies that video streams are flowing through the video server.

15. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both,


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under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above referenced application and any patent issuing thereon.

Date: March 7, 2006
BARTLEY C. CONRATH